

**Safety Precautions**  
**For Handling Epoxy and Urethane Resins**

*There are two components which make up most epoxy resin systems:*

- 1. RESIN, with or without filler. (May be labeled "A" Component.)*
- 2. HARDENER, fluid or paste-like consistency. (May be labeled "B" Component.)*

**Epoxy  
Resins**

There are several types of epoxy resins - some are safe to handle, others are less safe and should not contact the skin. Some individuals may show allergic tendencies with these materials and should follow precautionary measures noted below. Some resins may have diluents added to facilitate their processing, and these diluents may be irritating or noxious in odor. See section titled "Precautionary Measures."

**Epoxy  
Hardeners**

Hardeners, or curing agents as they are called, differ in their ability to cure resins, as well as their tendency to cause skin irritation or dermatitis. Most room temperature set hardeners are based on polyamides or aliphatic amines. If proper precautions are followed, hardeners can usually be handled without difficulty. Safety hardeners are now available, though occasionally an individual shows an allergic reaction to these. This usually appears only after repeated or prolonged contact with the hardener. The elevated temperature curing agents are generally aromatic amine or acid anhydrides. Most aromatic amines will tend to discolor the skin. See "Precautionary Measures."

**General  
Precautionary  
Measures**

*Note: These general precautions are applicable to handling the components of urethane systems as well as the handling of epoxies.*

1. Mix and apply materials in well ventilated areas, preferably with forced air draft to carry away fumes. Ovens used to heat cure epoxies should be safely ventilated to outside areas.
2. Avoid contact of materials with the skin. Wear protective clothing when material contact is anticipated. Long rubber or vinyl coated gloves with cloth interiors are suggested, and goggles or eye shields to protect the eyes if splashing of the material occurs.
3. Observe good personal hygiene. Avoid contaminating clothing or the inside of gloves. Use soap and warm water at frequent intervals to clean hands and DO NOT use strong cleaning solvents such as acetone or methylethylketone (MEK) which dissolve protective oils from the skin. If cleaning of epoxy resin from clothing is necessary, a 50:50 mixture of denatured alcohol and toluene is suggested. Use denatured alcohol only to clean hands or skin.
4. Maintain good housekeeping. Do not leave deposits of resins or hardeners on work areas, doorknobs, etc. Wipe off immediately with paper towels or rags. Use disposable mixing containers and throwaways wherever possible.
5. Some individuals find that the application of barrier creams to hands and face is desirable before beginning work. (West Disinfectant 411 and Kerodex are among acceptable creams. Your physician can recommend others.) Reapply barrier creams after washing hands.

6. If skin afflictions or irritations appear, qualified medical help should be obtained. The physician should be informed that skin irritation might have been caused by epoxy or urethane resins or hardeners. In uncomplicated cases, the skin irritations will disappear quickly. In serious cases, several days may be required. In general, irritations reappear when contact is resumed, unless adequate protection is used. Persons who are known to be particularly susceptible should be transferred to work which does not require the handling of these materials.

7. These materials are for PROFESSIONAL AND INDUSTRIAL USE ONLY and should be KEPT AWAY FROM CHILDREN.

8. If you have any doubts or questions, consult your physician. Do not handle these materials in the presence of existing skin irritations or respiratory problems.

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**Safety  
Precautions**

Urethane reaction materials which involve isocyanates are potentially hazardous in both the liquid and vapor states. They can act as irritants to the skin and mucous membranes, especially the eyes and upper respiratory regions. Particularly sensitive individuals may experience asthma-like attacks. Even concentrations below the odor threshold may affect sensitive persons who are subject to hay fever and asthma. If you suspect problems or show skin sensitivity, consult your physician. In addition to general precautions, the use of outside air-supplied respirators is recommended where vapor concentrations are high.

Skin exposure should be avoided, and accidental spills must be thoroughly removed by washing with soap and water. Eyes should be irrigated with large quantities of water and a physician consulted.

Certain resins and hardeners are considered more toxic than others. When necessary, in keeping with industry requirements, a special precautionary label is affixed as follows: "DANGER - Prolonged or repeated contact of liquid or breathing of vapors or mists may cause delayed and serious injury. Do not get on skin or clothing. Avoid inhalation of vapor or mists. In case of skin contact, wash thoroughly with soap and water. Remove contaminated clothing and wash thoroughly before reuse."

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**General  
Suggestions**

Specific notices, characteristics and properties are further described in the individual Technical Information Sheets, explanatory labels or Material Safety Data Sheets. These are available from Furane upon request.

It is recommended that experimental samples of urethane and epoxy resins and hardeners be evaluated before production applications commence. This will familiarize personnel with the curing and handling properties of the materials. For experimental or production use, the importance of cleanliness, protective clothing, and good ventilation must be emphasized.

In the event any individuals show any allergic tendencies to the materials used, consult your physician or plant safety department at once for professional advice.

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